



#### Product Summary

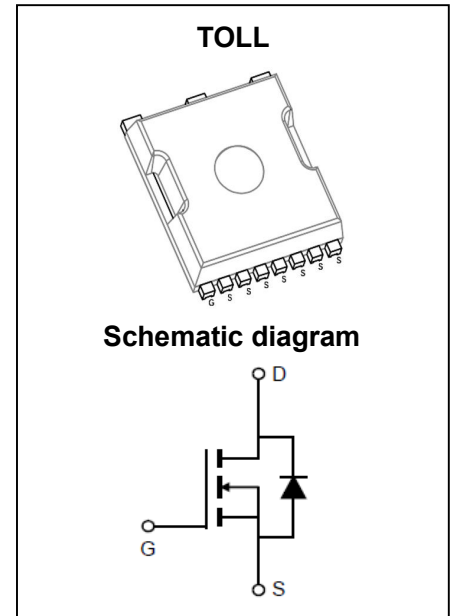
$V_{(BR)DSS}$	$R_{DS(on)TYP}$	$I_D$
100V	1.1m $\Omega$ @10V	325A

#### Feature

- Split Gate Trench Technology
- Low  $R_{DS(ON)}$
- Low Gate Charge
- Low Gate Resistance
- 100% UIS Tested

#### Application

- Power Switching Application
- Motor Driving



#### Package Marking and Ordering Information

Part Number	Package	Marking	Packing	Reel Size	Tape Width	Qty
GPT011N10NTP	TOLL	T011N10N	Reel & Tape	330mm	24mm	2000pcs

#### ABSOLUTE MAXIMUM RATINGS ( $T_A = 25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain - Source Voltage	$V_{DS}$	100	V
Gate - Source Voltage	$V_{GS}$	$\pm 20$	V
Continuous Drain Current <sup>1</sup>	$T_C = 25^\circ\text{C}$	$I_D$	325
	$T_C = 100^\circ\text{C}$	$I_D$	205
Pulsed Drain Current <sup>2</sup>	$I_{DM}$	1300	A
Single Pulsed Avalanche Current <sup>3</sup>	$I_{AS}$	99	A
Single Pulsed Avalanche Energy <sup>3</sup>	$E_{AS}$	2450	mJ
Power Dissipation <sup>5</sup>	$T_C = 25^\circ\text{C}$	$P_D$	500
Thermal Resistance from Junction to Ambient <sup>6</sup>	$R_{\theta JA}$	35	$^\circ\text{C}/\text{W}$
Thermal Resistance from Junction to Case	$R_{\theta JC}$	0.25	$^\circ\text{C}/\text{W}$
Junction Temperature	$T_J$	150	$^\circ\text{C}$
Storage Temperature	$T_{STG}$	-55~ +150	$^\circ\text{C}$

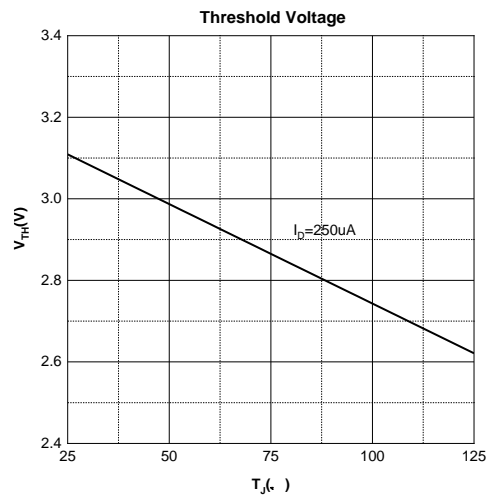
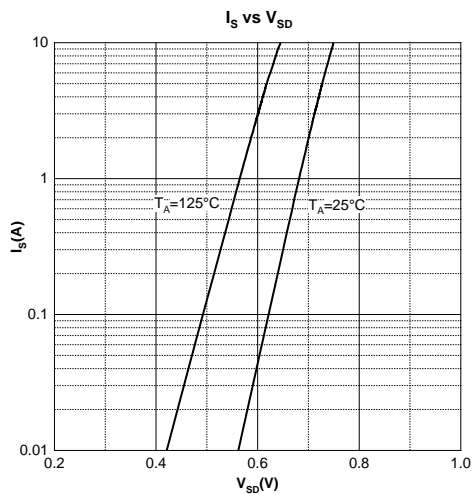
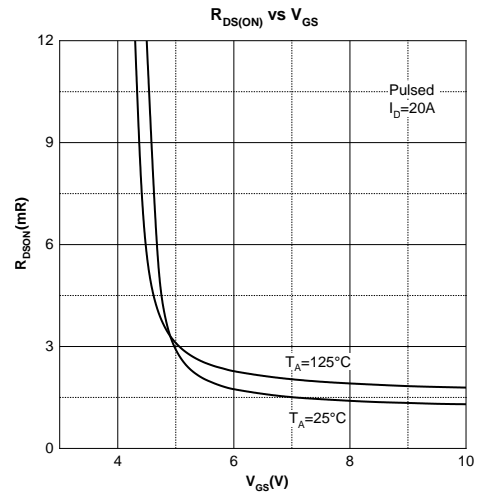
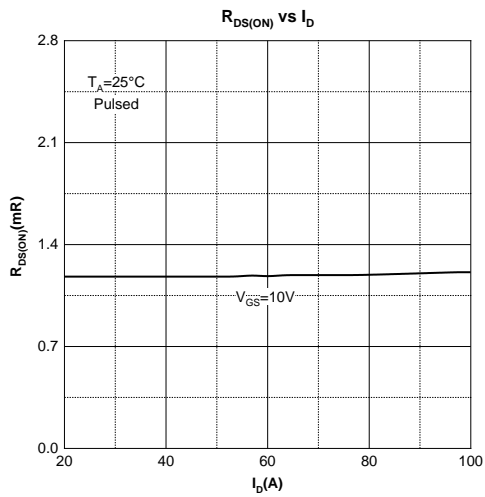
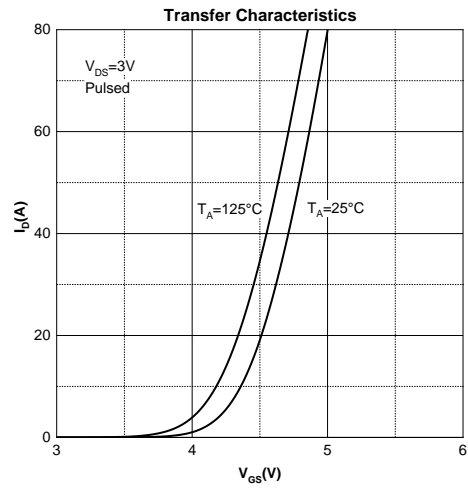
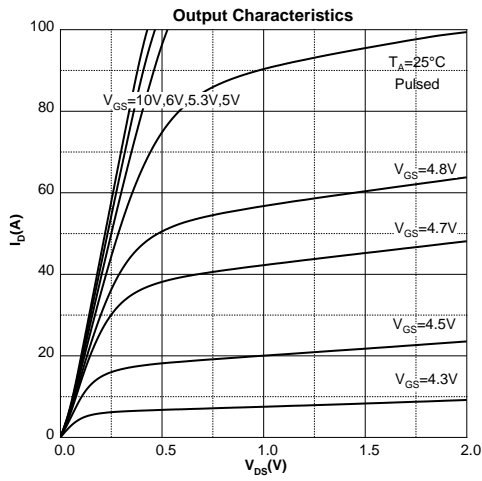
## MOSFET ELECTRICAL CHARACTERISTICS (T<sub>A</sub> = 25°C unless otherwise noted)z

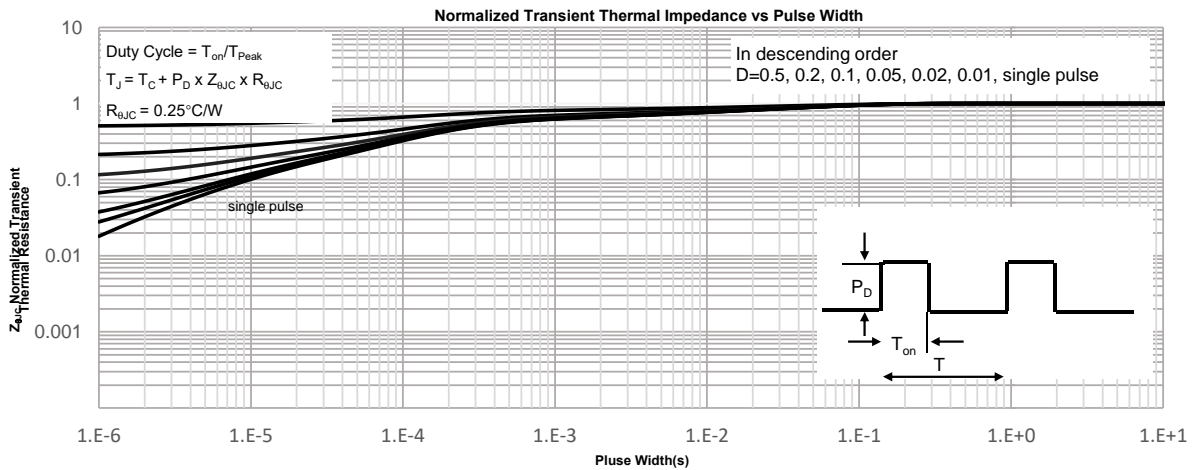
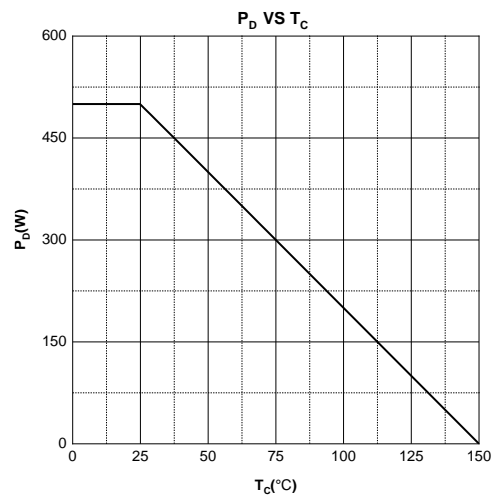
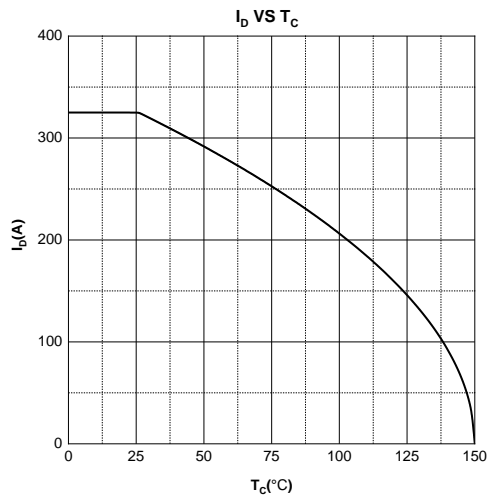
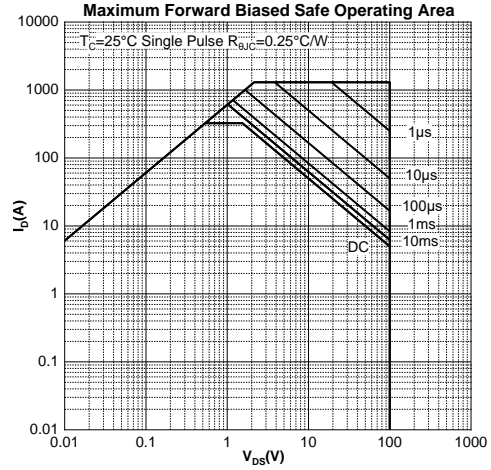
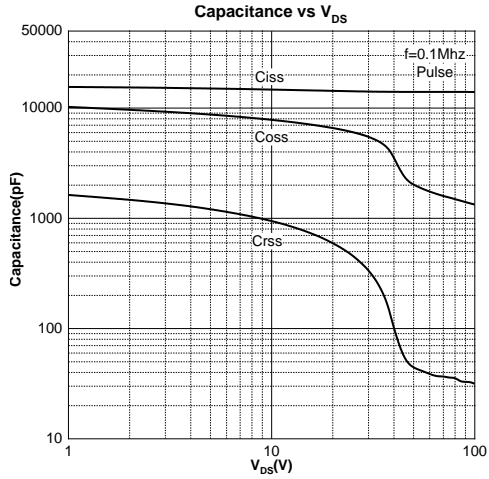
Parameter	Symbol	Test Condition	Min	Type	Max	Unit
<b>Off Characteristics</b>						
Drain - Source Breakdown Voltage	V <sub>(BR)DSS</sub>	V <sub>GS</sub> = 0V, I <sub>D</sub> = 250μA	100			V
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> = 100V, V <sub>GS</sub> = 0V			1	μA
Gate - Body Leakage Current	I <sub>GSS</sub>	V <sub>GS</sub> = ±20V, V <sub>DS</sub> = 0V			±100	nA
<b>On Characteristics<sup>4</sup></b>						
Gate Threshold Voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = 250μA	2	3.1	4	V
Drain-source On-resistance	R <sub>DS(on)</sub>	V <sub>GS</sub> = 10V, I <sub>D</sub> = 20A		1.1	1.4	mΩ
<b>Dynamic Characteristics</b>						
Input Capacitance	C <sub>iss</sub>	V <sub>DS</sub> = 50V, V <sub>GS</sub> = 0V, f = 0.1MHz		13860		pF
Output Capacitance	C <sub>oss</sub>			2043		
Reverse Transfer Capacitance	C <sub>rss</sub>			44		
Gate Resistance	R <sub>g</sub>	V <sub>DS</sub> = 0V, V <sub>GS</sub> = 0V, f = 1MHz		2.8		Ω
<b>Switching Characteristics</b>						
Total Gate Charge	Q <sub>g</sub>	V <sub>DS</sub> = 50V, V <sub>GS</sub> = 10V, I <sub>D</sub> = 20A		200		nC
Gate-source Charge	Q <sub>gs</sub>			58		
Gate-drain Charge	Q <sub>gd</sub>			42		
Turn-on Delay Time	t <sub>d(on)</sub>	V <sub>DD</sub> = 20V, V <sub>GS</sub> = 10V, R <sub>L</sub> = 1Ω, R <sub>G</sub> = 3Ω		39		ns
Turn-on Rise Time	t <sub>r</sub>			65		
Turn-off Delay Time	t <sub>d(off)</sub>			129		
Turn-off Fall Time	t <sub>f</sub>			90		
<b>Source - Drain Diode Characteristics</b>						
Diode Forward Voltage <sup>4</sup>	V <sub>SD</sub>	V <sub>GS</sub> = 0V, I <sub>S</sub> = 20A			1.2	V

### Notes :

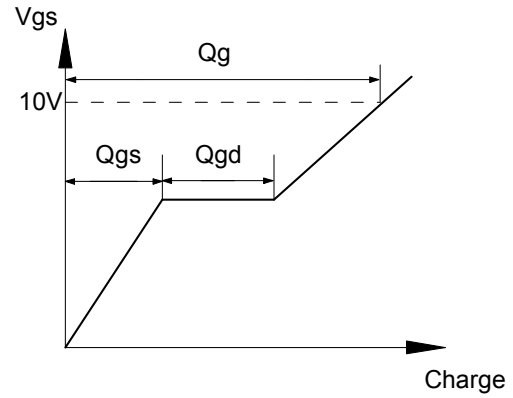
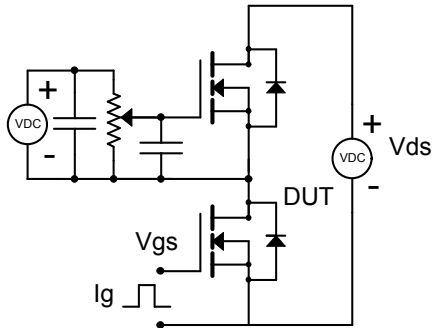
- 1.The maximum current rating is limited by package.And device mounted on a large heatsink
- 2.Pulse Test : Pulse Width ≤ 10μs, duty cycle ≤ 1%.
- 3.EAS condition: V<sub>DD</sub> = 50V, V<sub>GS</sub> = 10V, L = 0.5mH, R<sub>G</sub> = 25Ω Starting T<sub>J</sub> = 25°C.
- 4.Pulse Test : Pulse Width ≤ 300μs, duty cycle ≤ 2%.
- 5.The power dissipation P<sub>D</sub> is limited by T<sub>J(MAX)</sub> = 150°C.And device mounted on a large heatsink
- 6.Device mounted on 1in<sup>2</sup> FR-4 board with 2oz. Copper, in a still air environment with T<sub>A</sub> =25°C.

## Typical Characteristics

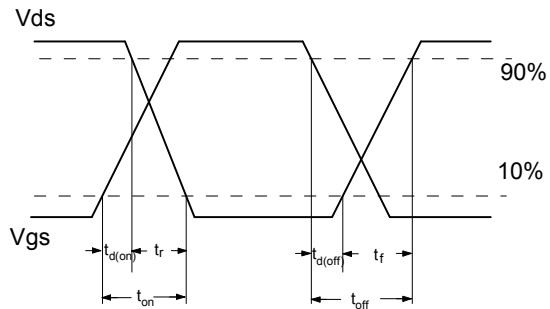
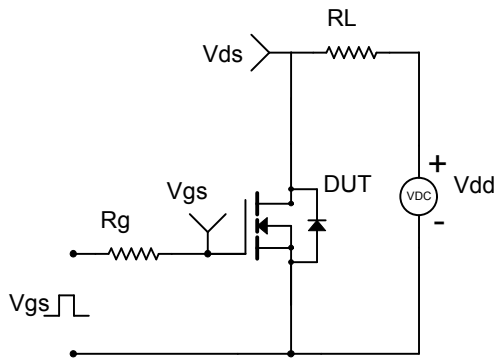




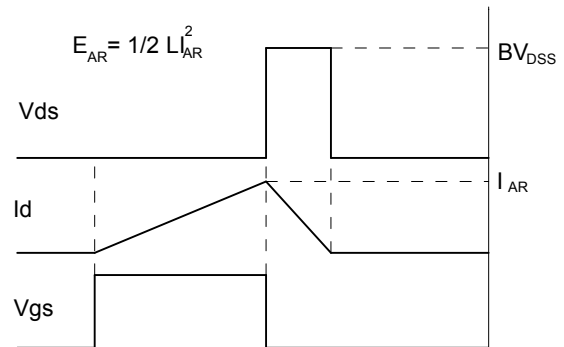
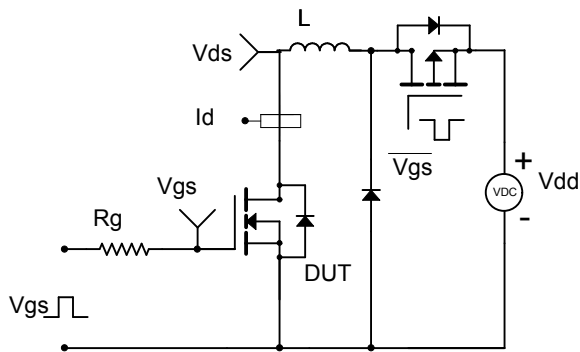
Gate Charge Test Circuit & Waveform



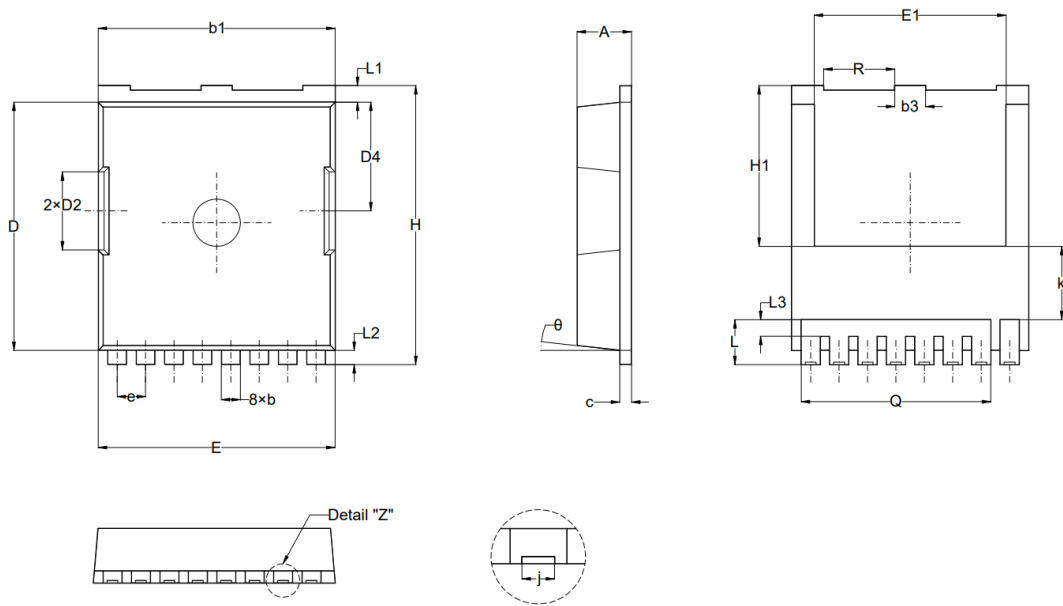
Resistive Switching Test Circuit & Waveform



Unclamped Inductive Switching (UIS) Test Circuit & Waveforms



## TOLL Package Information



SYMBOL	MILLIMETER		Dimensions In Inches	
	MIN.	MAX.	Min.	Max.
A	2.200	2.400	0.087	0.094
b	0.650	0.900	0.026	0.035
b1	9.700	9.900	0.382	0.390
b3	1.150	1.350	0.045	0.053
c	0.400	0.600	0.016	0.024
D	10.280	10.480	0.405	0.413
D2	3.200	3.400	0.126	0.134
D4	4.450	4.650	0.175	0.183
E	9.800	10.000	0.386	0.394
E1	7.900	8.300	0.311	0.327
e	1.200BSC		0.047BSC	
H	11.480	11.880	0.452	0.468
H1	6.950REF		0.274REF	
j	0.350REF		0.014REF	
K	3.00REF		0.118REF	
L	1.600	2.000	0.063	0.079
L1	0.550	0.850	0.022	0.033
L2	0.500	0.700	0.020	0.028
L3	0.500	0.800	0.020	0.031
N	8REF		0.315REF	
Q	8REF		0.315REF	
R	2.800	3.200	0.110	0.126
θ	10°REF			

**Attention:**

- GreenPower Electronics reserves the right to improve product design function and reliability without notice.
- Any and all semiconductor products have certain probability to fail or malfunction, which may result in personal injury, death or property damage. Customer are solely responsible for providing adequate safe measures when design their systems.
- GreenPower Electronics products belong to consumer electronics or other civilian electronic products.